

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1 (previously presented): A method for continuously heat treating a double tapered steel wire (S), characterized by comprising the steps of:

continuously detecting a diameter of said steel wire (S) in heat treatment of said steel wire (S), wherein said steel wire (S) has a constant large-diameter portion (21), a constant small-diameter portion (24) and a tapered end portions (22, 23) disposed therebetween in its longitudinal direction;

controlling the amount of energy of induction heating supplied to said steel wire (S), wherein the amount of said energy is proportional to a wire diameter of said steel wire (S) having been detected so that said steel wire (S) is evenly heated over the entire length of said steel wire (S); and

at least one of quenching and tempering said steel wire (S) in a manner such that the tensile strength of the small-diameter portion and the tensile strength of the large-diameter portion of said steel wire (S) are substantially equal;

wherein said steel wire (S) substantially keeps its original shape unchanged throughout in its heat treatment.

Claim 2 (previously presented): A double tapered steel wire (S) characterized by comprising:

a straight portion (21) with a constant large-diameter;

opposite tapered portions (22, 23) disposed adjacent to opposite ends of said straight portions (21, 24), wherein said tapered portions (22, 23) are tapered down to their reduced-diameter outer ends;

straight portions (24) with a constant small-diameter respectively disposed on opposite ends of said tapered portions;

wherein a diameter of said steel wire (S) is continuously detected, and the amount of energy of induction heating supplied to said steel wire (S) thus detected is proportional to said diameter of said steel wire (S), so that said steel wire (S) is evenly heated over the entire length of said steel wire (S), and then at least one of quenched and tempered in a manner such that the tensile strength of the small-diameter portions (24) is substantially equal to the tensile strength of the large-diameter portion (21);

wherein said steel wire (S) substantially keeps its original shape unchanged throughout its heat treatment.

Claims 3-5 (canceled)